What is claimed is:

1. A thermoelectric apparatus comprising:

a Peltier effect heat transfer circuit system including:

a plurality of thermoelectric transducers, each of the thermoelectric transducers including a first conductive member and a second conductive member having different Seebeck coefficients, and a joining member joining the first conductive member and the second conductive member;

a coupling member connecting each of joining member opposite parts of the first conductive member and the second conductive member in each of at least one of the thermoelectric transducers electrically and serially to a respective one of joining member opposite parts of the first conductive member and the second conductive member in each of at least remaining one of the thermoelectric transducers; and

a direct-current power supply serially connected to at least one of the coupling members,

each of heat absorption modules in the Peltier effect heat transfer circuit system being disposed away from each of heat generating modules in the Peltier effect heat transfer circuit system so as to keep a temperature $T\alpha$ of the heat absorbing module and a temperature $T\beta$ of the heat generating module in a relationship of $T\alpha < T\beta$.

2. A direct energy conversion system comprising:

a directly energy conversion electric circuit system including:

a plurality of thermoelectric transducers, each of the thermoelectric transducers including a first conductive member and a second conductive member having different Seebeck coefficients, and a joining member joining the first conductive member and the second conductive member, and the thermoelectric transducers being placed in at least two different temperature environments; and

a coupling member connecting each of joining member opposite parts of the first conductive member and the second

conductive member in each of at least one of the thermoelectric transducers electrically and serially to a respective one of joining member opposite parts of the first conductive member and the second conductive member in each of at least remaining one of the thermoelectric transducers,

each of the thermoelectric transducers placed in a high temperature environment being disposed away from each of the thermoelectric transducers placed in a low temperature environment, so as to keep a temperature T1 of the thermoelectric transducer placed in the high temperature environment and a temperature T2 of the thermoelectric transducer placed in the low temperature environment in a relationship of T1 > T2,

the directly energy conversion electric circuit system being configured to allow to extract electrical potential energy from a given place in each of at least one of the coupling members to convert thermal energy to electrical potential energy.

3. An energy conversion system comprising:

a directly energy conversion electric circuit system including:

a plurality of thermoelectric transducers, each of the thermoelectric transducers including a first conductive member and a second conductive member having different Seebeck coefficients, and a joining member joining the first conductive member and the second conductive member, and the thermoelectric transducers being placed in at least two different temperature environments; and

a coupling member connecting each of joining member opposite parts of the first conductive member and the second conductive member in each of at least one of the thermoelectric transducers electrically and serially to a respective one of joining member opposite parts of the first conductive member and the second conductive member in each of at least remaining one of the thermoelectric transducers,

each of the thermoelectric transducers placed in a high temperature environment being disposed away from each of the

thermoelectric transducers placed in a low temperature environment, so as to keep a temperature T1 of the thermoelectric transducer placed in the high temperature environment and a temperature T2 of the thermoelectric transducer placed in the low temperature environment in a relationship of T1 > T2,

the directly energy conversion electric circuit system being configured to allow to extract electrical potential energy from a given place in each of at least one of the coupling members to convert thermal energy to electrical potential energy, and

the energy conversion system being configured to conduct electrolysis with the electrical potential energy extracted from a given place in each of at least one of the coupling members, to convert the electrical potential energy to chemical potential energy.

4. An energy conversion system comprising:

a thermoelectric apparatus including a Peltier effect heat transfer circuit system including:

a plurality of thermoelectric transducers, each of the thermoelectric transducers including a first conductive member and a second conductive member having different Seebeck coefficients, and a joining member joining the first conductive member and the second conductive member;

a coupling member connecting each of joining member opposite parts of the first conductive member and the second conductive member in each of at least one of the thermoelectric transducers electrically and serially to a respective one of joining member opposite parts of the first conductive member and the second conductive member in each of at least remaining one of the thermoelectric transducers; and

a direct-current power supply serially connected to at least one of the coupling members,

each of heat absorption modules in the Peltier effect heat transfer circuit system being disposed away from each of heat generating modules in the Peltier effect heat transfer circuit system

so as to keep an environmental temperature T1 of the heat absorbing module and an environmental temperature T2 of the heat generating module in a relationship of T1 > T2,

the energy conversion system being configured to supply thermal energy obtained from the thermoelectric transducer apparatus to each of the thermoelectric transducers placed in the high temperature environment in the direct energy conversion system according to claim 2 to obtain electrical potential energy, and

the energy conversion system being configured to positively feed back a part of the electrical potential energy to the thermoelectric apparatus for use as a direct-current power supply.

5. The direct energy conversion system according to claims 2 to 4, wherein the direct energy conversion system comprises at least one set of the directly energy conversion electric circuit systems, and a plurality of startup modules for applying a temperature difference by one of initial external heating and initial external cooling to at least one of the first conductive members and the second conductive members, and

wherein the direct energy conversion system is configured to directly convert to electrical potential energy from an environmental thermal energy source caused by the temperature differences in environments in a plurality of places separated from each other.

6. The energy conversion system according to claim 4 or 5, further comprising an on/off switch connected to each of at least one place in the coupling members, wherein the energy conversion system is configured to control positive feedback of the electrical potential energy by switching the on/off switch.

7. The thermal energy conversion system according to claim 4 or 5, wherein the thermal energy conversion system is configured to control positive feedback of the electrical potential energy by switching the on/off switch, and

wherein the thermal energy conversion system is configured to supply the electrical potential energy to the thermoelectric

apparatus, and to cut off electric power supply from the direct-current power supply of the thermoelectric apparatus.

8. The thermal energy conversion system according to any one of claims 4 to 7, wherein the thermal energy conversion system is configured to conduct electrolysis with the electrical potential energy to convert the electrical potential energy to chemical potential energy.